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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/493,677	01/28/2000	Kaoru Sato	43890-401	2531

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EXAMINER
LEO, LEONARD R

ART UNIT	PAPER NUMBER
3743	

DATE MAILED: 08/26/2003

26

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/493,677	SATO ET AL.	
	Examiner	Art Unit	
	Leonard R. Leo	3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 June 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-9,15,17,19-21,23 and 25-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 6, 2003 has been entered.

Claims 2, 16, 22 and 24 are cancelled, and claims 1, 4-9, 15, 17, 19-21, 23 and 25-33 are pending.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 5-6, 9, 25, 28 and 32; and 15, 17, 19-21, 26-27, 29 and 33 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 9, respectively of U.S. Patent No. 6,533,028.

The patent claims all the claimed limitations of the application except pillar-type protrusions extending only at oblique angles.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in the patent pillar-type protrusions extending only at oblique angles for the purpose of achieving a desired heat exchange.

Regarding claims 5 and 17, the pillar-type protrusions located on the upper surface of the patent claims are inherently spaced away from the bottom heat receiving surface.

Regarding claim 25, the patent claim recites "a thickness increasing from a first end ... to a second end" is broadly read on a "curve."

Regarding claim 26, the pillar-type protrusions are at the same vertical height when the blower is mounted on top.

Claims 4 and 8; and 23 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 9, respectively of U.S. Patent No. 6,533,028 in view of Lin.

The patent claims all the claimed limitations of the application except protrusions and/or recesses on the pillar-type protrusions.

Lin discloses a cooling apparatus comprising a blower 30 mounted on heat sink 10 having a plurality of pillar-type protrusions 11 with protrusions and/or recesses for the purpose of increasing the surface area and turbulence to improve heat exchange.

Since the patent and Lin are both from the same field of endeavor and/or analogous art, the purpose disclosed by Lin would have been recognized in the pertinent art of the patent.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in the patent pillar-type protrusions with protrusions and/or

recesses for the purpose of increasing the surface area and turbulence to improve heat exchange as recognized by Lin.

Claims 30-31 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,533,028 in view of Marton, Arnold et al or Elgar et al.

The patent claims all the claimed limitations of the application except a second plurality of pillar-type protrusions.

Marton, Arnold et al or Elgar et al discloses a cooling apparatus comprising an electrical component mounted centrally on a heat sink having a column whose cross-section decreases away therefrom and a plurality of pillar-type protrusions on opposed surfaces for the purpose of increasing the surface area to improve heat exchange.

Since the patent and Marton, Arnold et al or Elgar et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Marton, Arnold et al or Elgar et al would have been recognized in the pertinent art of the patent.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in the patent a plurality of pillar-type protrusions on opposed surfaces for the purpose of increasing the surface area to improve heat exchange as recognized by Marton, Arnold et al or Elgar et al.

Regarding claim 32, as applied to claims 5 and 17 above, the pillar-type protrusions located on the upper surface of the patent claims are inherently spaced away from the bottom heat receiving surface.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 29 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Coe (3,149,666 or 3,220,471), Yu or North et al (Figures 2 and 4-5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 5-6, 9, 15, 17, 19-21, 25, 27-28 and 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu in view of Hinshaw.

Yu discloses all the claimed limitations except an uninterrupted fluid path in the direction of column.

Hinshaw discloses a heat sink 10 comprising a plurality of first and second slits forming a plurality of pillar-type protrusions for the purpose of increasing the surface area to improve heat exchange and permitting omni-directional convective cooling (column 2, lines 51-56).

Since Yu and Hinshaw are both from the same field of endeavor and/or analogous art, the purpose disclosed by Hinshaw would have been recognized in the pertinent art of Yu.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Yu second slits forming a plurality of pillar-type protrusions for the purpose of increasing the surface area to improve heat exchange and permitting omni-directional convective cooling as recognized by Hinshaw.

Regarding claims 20-21 and 27, Hinshaw discloses the convective cooling may be from on top of the heat sink.

Claims 1, 5-7, 9, 15, 17, 19, 28 and 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coe (3,220,471) or North et al in view of Hinshaw.

Coe ('471) or North et al discloses all the claimed limitations except an uninterrupted fluid path in the direction of column.

Hinshaw discloses a heat sink 10 comprising a plurality of first and second slits forming a plurality of pillar-type protrusions for the purpose of increasing the surface area to improve heat exchange and permitting omni-directional convective cooling (column 2, lines 51-56).

Since Coe ('471) or North et al and Hinshaw are both from the same field of endeavor and/or analogous art, the purpose disclosed by Hinshaw would have been recognized in the pertinent art of Coe ('471) or North et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Coe ('471) or North et al second slits forming a plurality of pillar-type protrusions for the purpose of increasing the surface area to improve heat exchange and permitting omni-directional convective cooling as recognized by Hinshaw.

Claims 4, 8 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu in view of Hinshaw as applied to claims 1, 5-6, 9, 15, 17, 19-21, 25, 27-28 and 30-33 above or Coe

(3,220,471) or North et al in view of Hinshaw as applied to claims 1, 5-7, 9, 15, 17, 19, 28 and 30-33 above, and further in view of Lin, as applied to claims 4, 8 and 23 in the double patenting rejection above.

Response to Arguments

The rejections in view of Arnold et al, Lin and Higgins, III are withdrawn.

Applicant is reminded of his duty to disclose under 37 CFR § 1.56, which states in part:

> **Duty to disclose information material to patentability.**
> (a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry of a general nature, relating to the status of this application or clerical nature (i.e. missing or incomplete references, missing or incomplete Office actions or forms) should be directed to the Technology Center 3700 Customer Service whose telephone number is (703) 306-5648. Status of the application may also be obtained from the Internet: http://pair.uspto.gov/cgi-bin/final/home.pl

Any inquiry concerning this Office action should be directed to Leonard R. Leo whose telephone number is (703) 308-2611.

Leonard R Leo

LEONARD R. LEO
PRIMARY EXAMINER
ART UNIT 3743

August 25, 2003